Automated Configuration Management System (ACMS)

Army ILS Symposium

28 January 99

Presented by:
Tom Schneider
AMSAA
(309) 782-7794
schneidert@ria.army.mil

Briefing Outline

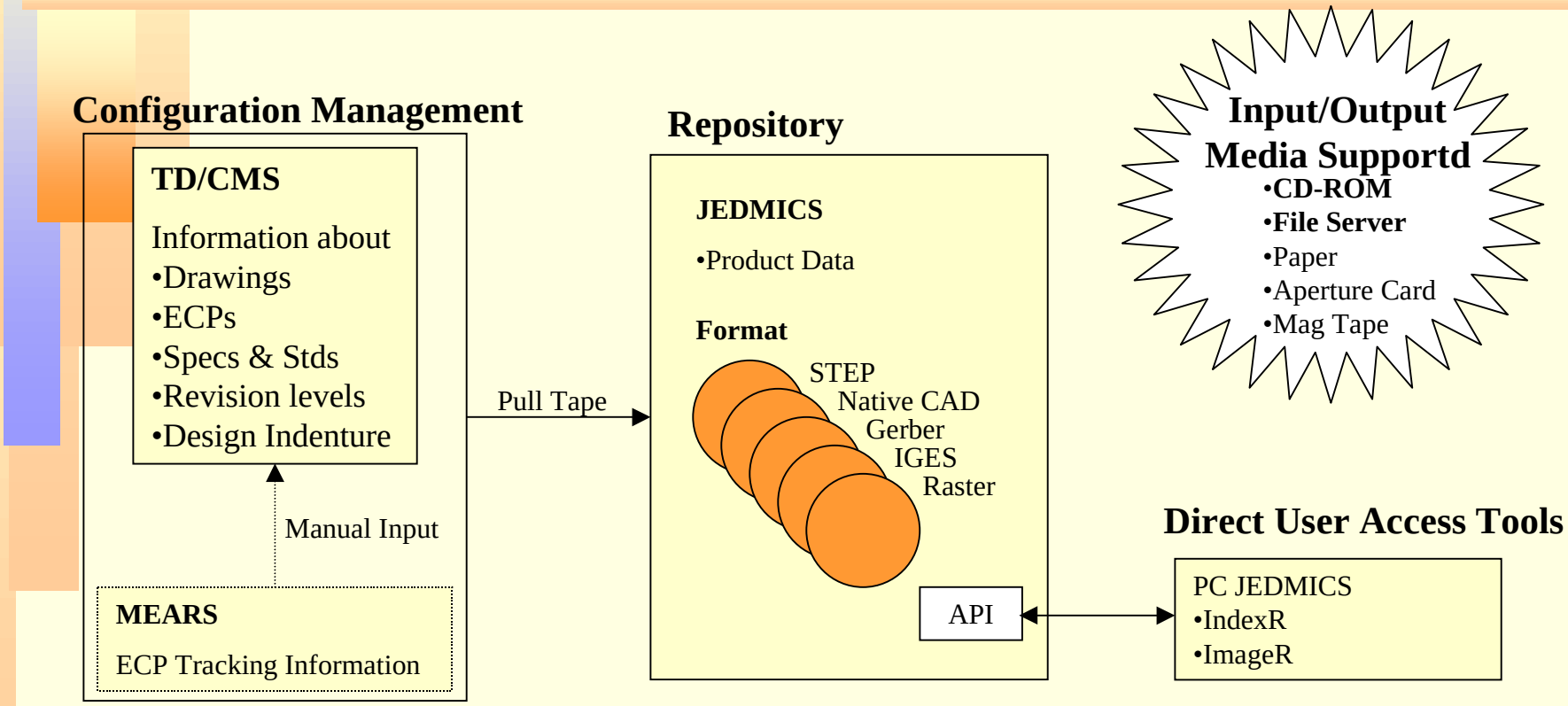
- Background
  - Current Army Data Environment and Problems
- ACMS
  - Task Methodology
  - Benefits
- AMC Implementation Strategy
- ACMS Benefits to the Logistics Community
- Input to Concept of Operations
- Summary

What is Configuration Management (CM)

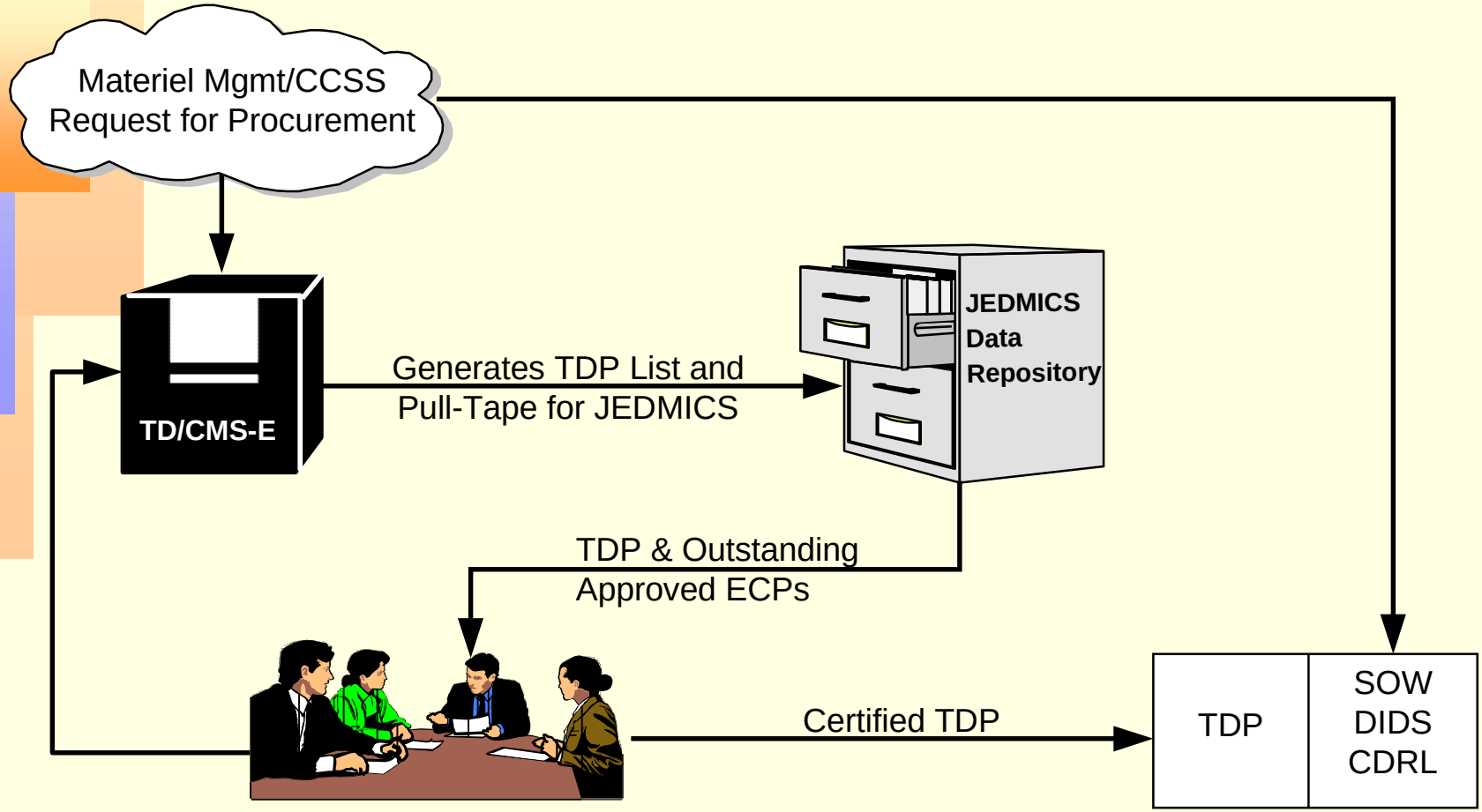
"A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design and operational information throughout its life. ..."

(MIL-STD-2549)

Current Engineering Data Management Systems



Tech Loop Process



Current Engineering Data Statistics

AMC has:

- 6 Technical Data/Configuration Management System (TD/CMS) and 5 Joint Engineering Data Management Information Control System (JEDMICS) sites
- 8.5 Million images
- 5,000 Engineering Change Proposals (ECPs) / yr
- 8,500 spare parts reprocurements / yr

Current Army Environment

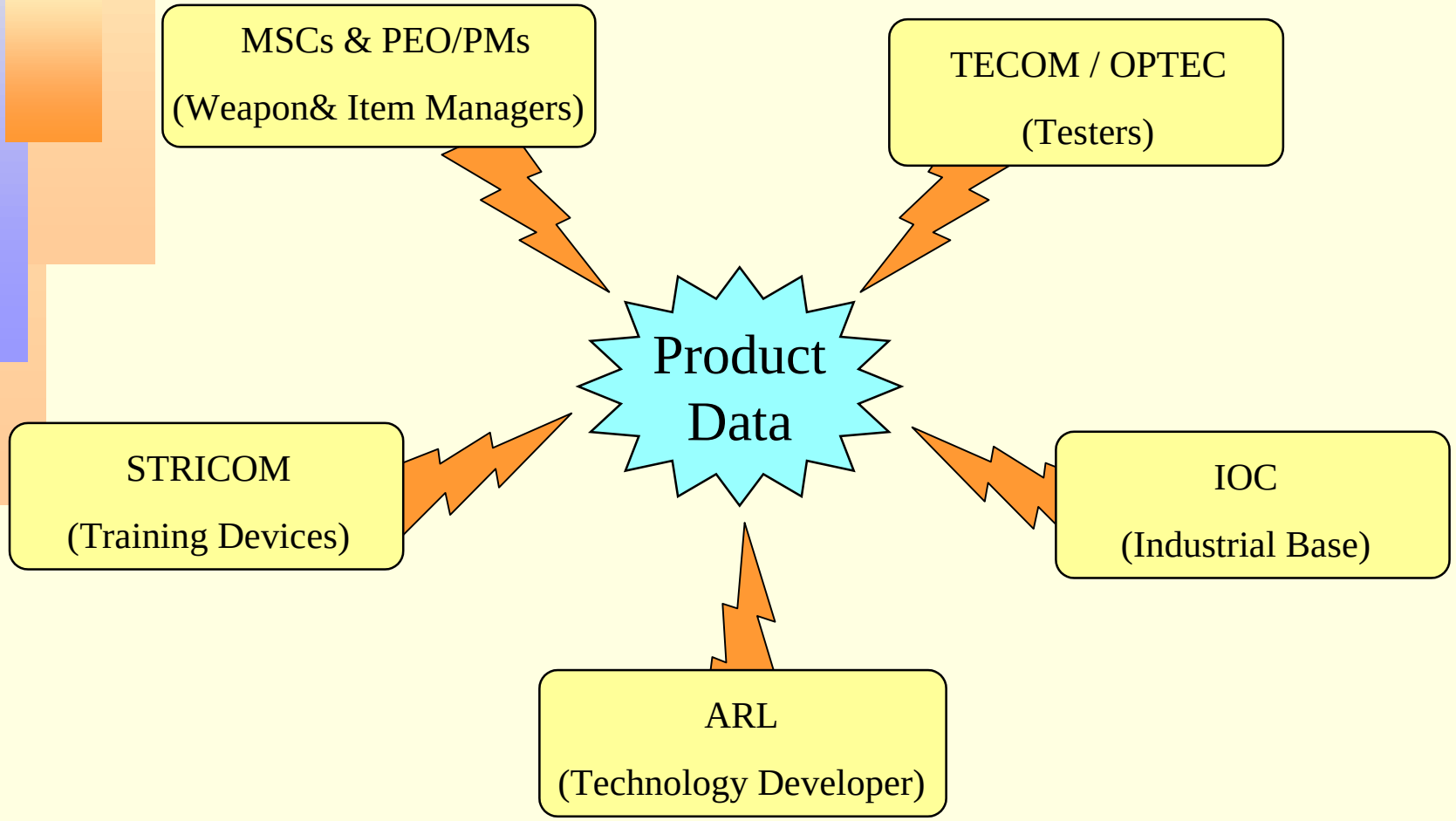
Facts

- Army legacy digital product data is primarily stored in "unintelligent" raster format
- Contractors are developing "intelligent" data that cannot be managed by TD/CMS
- TD/CMS can't manage multiple product baselines
- CITIS implementations tend to be program unique (digital delivery of product data)

Resulting Problems

- Forces new producers to "re-invent" lost data intelligence - geometry and metadata
- Army incurs additional cost for conversion of data to raster format
- Depots must rely on other unofficial data sources to support repair and modifications
- Repetitive unique solutions are expensive and provide little interoperability

Army Interoperability Needs

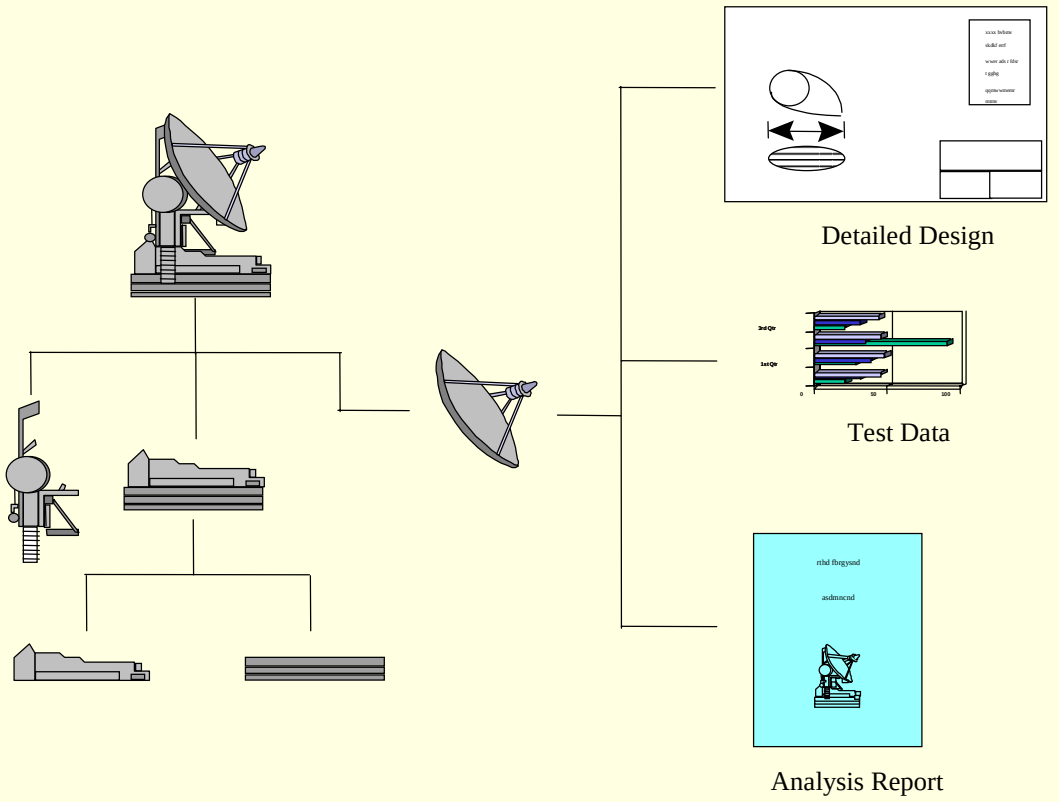


Analysis

- Army does not do all aspects of CM as well as it should. Current automated system (TD/CMS) can't handle all user needs.
- Army must switch from a "drawing" to "product" perspective.
- Army must provide access to all product data required (not just the two dimensional images of record) to support a product throughout its life cycle.
- Complete life cycle access to product data is only possible if the Army practices cradle to grave configuration management of product data.

Product Structure

A Product Structure is a hierarchical listing of the assemblies, subassemblies, and parts that comprise a product. A PDM system allows the relevant CAD models, drawings, and documents to be attached to the Product Structure at the appropriate assembly or part.



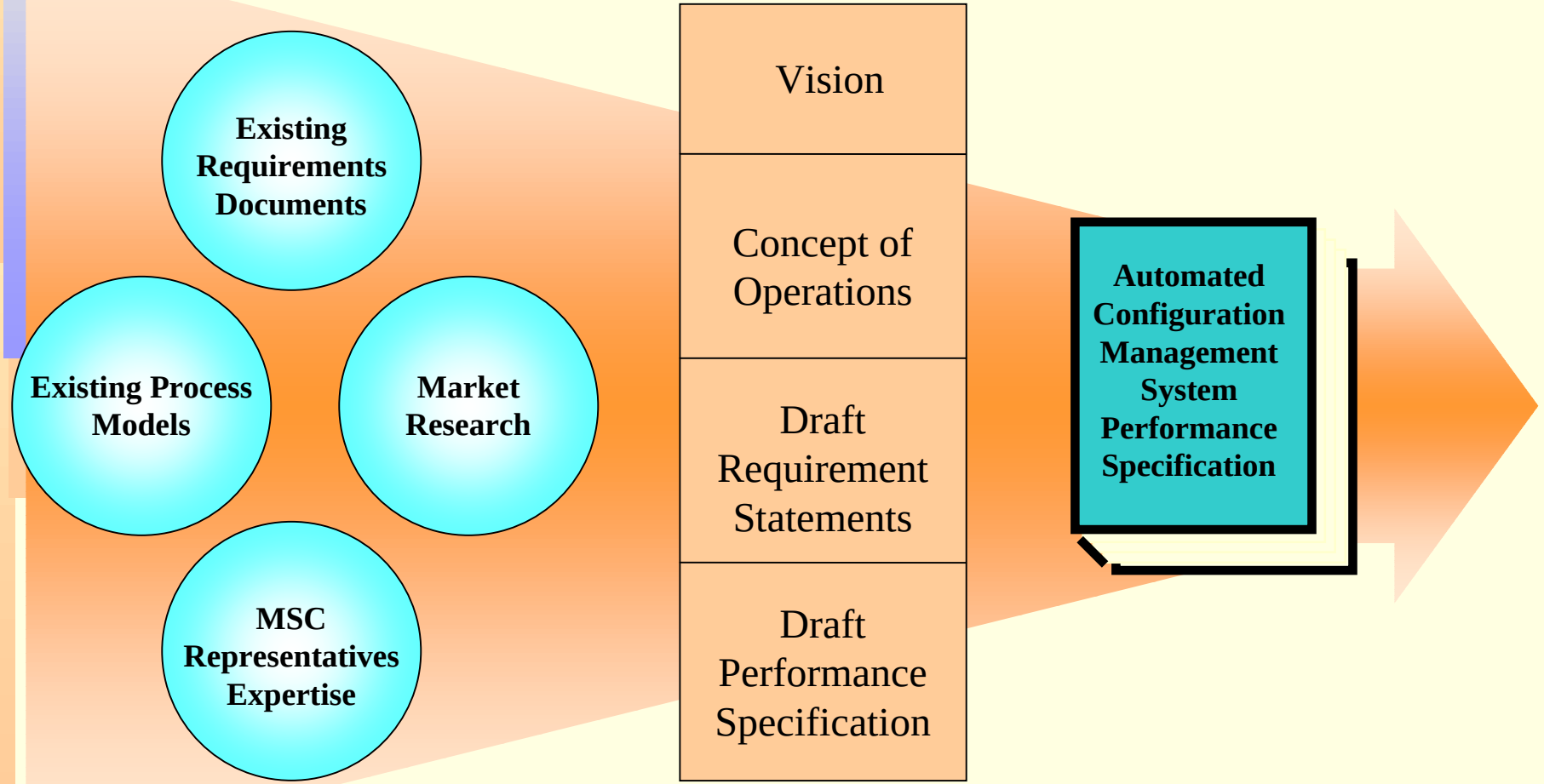
Solution

Need an automated configuration management system that:

- Knows about all product related data
- Can accept and manipulate “intelligent” data and manage multiple product baselines
- Is compatible with Industry practices
- Provides a standard means for the delivery of digital product data
- Supports Acquisition Reform objectives
- Allows for interoperability between sites
- Uses Commercial-off-the-Shelf technology

That’s ACMS!

ACMS Task Methodology



AMC Implementation Strategy

- Publish the ACMS Performance Specification
- Continue to build customer and stakeholder support
- Pursue a two phase acquisition strategy
  - Perform market analysis and develop implementation recommendations
  - Procure and install hardware and software and train personnel
- Establish Pilot Site at TACOM
- Seek funds to support the above

Product Data Management System Benefits

Typical benefits reported by Commercial Sector

• Reduction in number of Engineering Changes	55-80%
• Reduction in Engineering Change processing time	35%
• Reduction in design/development costs	50%
• Reduction in design cycle time	20-40%
• Reduction in the number of parts	42%
• Reduction in the number of paper copies	40-90%
• Reduction in the number of document control staff	30%
• Reduction in document release time	60%
• Reduction in document request time	99%
• Reduction in manufacturing costs	30%

Logistics Benefits

- Provides access to design or analytical data to determine replacement and spares rates
- Provides access to technical data required for field maintenance
- Records “as maintained” configuration
- Can readily locate supporting product data needed for re-engineering of obsolete parts
- Provides vendor and “where used” information
- Can serve as the revisable source data base for IETMs.
- Contains “Bill of Materials” and Parts Structure information for spares determination
- Contains reprocurement / spares technical data

ACMS Concept of Operations

We think ACMS:

- Address Logistics and Maintenance functions
- Contains all data needed for Logistics activities

But…

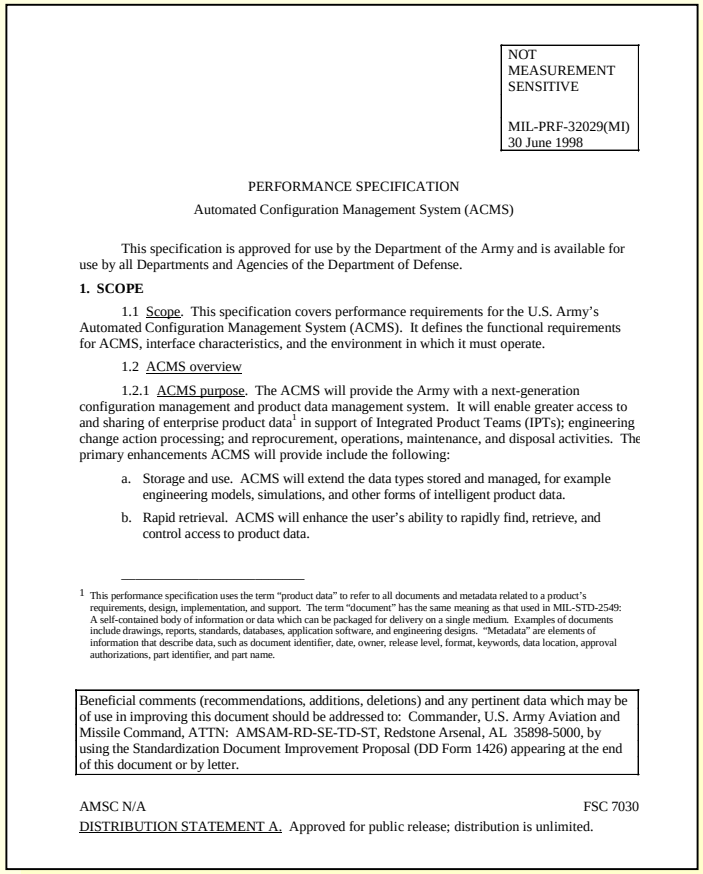
- No Logistics representatives on Task Force
- Unsure of total Logistics coverage

Need your input to the Concept of Operations!

Visit the ACMS Web page

For additional information and a copy of the Performance Specification, MIL-PRF-32029(MI)

www-iea.ria.army.mil/ai/eng_data/acms/acms_frameset1.html



NOT MEASUREMENT SENSITIVE

MIL-PRF-32029(MI)
30 June 1998

PERFORMANCE SPECIFICATION

Automated Configuration Management System (ACMS)

This specification is approved for use by the Department of the Army and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers performance requirements for the U.S. Army's Automated Configuration Management System (ACMS). It defines the functional requirements for ACMS, interface characteristics, and the environment in which it must operate.

1.2 ACMS overview

1.2.1 ACMS purpose. The ACMS will provide the Army with a next-generation configuration management and product data management system. It will enable greater access to and sharing of enterprise product data[1] in support of Integrated Product Teams (IPTs); engineering change action processing; and reprocurement, operations, maintenance, and disposal activities. The primary enhancements ACMS will provide include the following:

a. Storage and use. ACMS will extend the data types stored and managed, for example engineering models, simulations, and other forms of intelligent product data.

b. Rapid retrieval. ACMS will enhance the user's ability to rapidly find, retrieve, and control access to product data.

[1] This performance specification uses the term "product data" to refer to all documents and metadata related to a product's requirements, design, implementation, and support. The term "document" has the same meaning as that used in MIL-STD-2549: A self-contained body of information or data which can be packaged for delivery on a single medium. Examples of documents include drawings, reports, standards, databases, application software, and engineering designs. "Metadata" are elements of information that describe data, such as document identifier, date, owner, release level, format, keywords, data location, approval authorizations, part identifier, and part name.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-RD-SE-TD-ST, Redstone Arsenal, AL 35898-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 7030

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Send comments to: neyg@ria.army.mil

Summary

- Good Configuration Management is the key to data access and currency
- Army must shift from “drawing centric” to “product centric” view of data
- An ACMS will help the Army gain control over its product data and will provide the Army a tool by which it can continually improve its business processes
- Key element of PM Integrated Data Environment (IDE)
- Private industry experience shows significant cost savings can result